China

Qinhuangdao Port 4th Stage Coal Terminal Construction Project (I) (II)

Report Date: March 2001
Field Survey: August 2000

1. Project Profile and Japan's ODA Loan

Site Map: Hebei Province

Qinhuangdao Port

(1) Background

Qinhuangdao Port is situated on the eastern coast of Hebei Province, and its hinterlands include the north of Shanxi Province, the west of Inner Mongolia Province, the north of Shanxi Province, Gansu Province, Ningxia autonomous region and Hebei Province. All those are among China's major coal-producing regions. With total coal production of 310 million tons in 1992, the port's hinterlands accounted for approximately 30% of China's total coal production (by the second half of the '90s the share had risen to approximately 40%) (Table 1). Because the port is close to the country's major coal-fields, it has been progressively expanded and improved as China's largest coal shipping port. In 1978 construction of the 1st Stage coal berths began using the country's own funds, and one 20,000 ton berth and one 50,000 ton berth were completed in July 1983 (design handling capacity: 10 million tons/year). Construction of the 2nd Stage coal berths, using the first ODA loan, began in April 1980. The two berths, with 50,000 tons capacity each, for an annual handling capacity of 20 million tons, began operating in July 1985. Construction of 3rd Stage coal berths began in April 1984 using the country's own funding. The berths had capacities of 35,000 tons (two berths) and 50,000 tons (designed and built as a 100,000 tons berth) for a design handling capacity of 30 million tons, and began operation in July 1990. The 50,000 ton berth was dredged for deeper mooring at the end of 1999, and is now in use as a 100,000 ton berth. As the above berths were built, it was anticipated that port's handling capacity would fall approximately 40 million tons short of the export and transfer volume target of 115 million tons. Therefore the decision was taken to build the 4th Stage berths.

(2) Objectives

This project was to build a new coal export and transfer terminal (annual handling capacity 30 million tons) at the Qinhuangdao Port in Hebei Province, in order to meet the rapidly growing demand for coal handling at the port. After this project was completed, the coal handling capacity for the port as a whole reached 103.65 million tons.

(3) Project Scope

This project built a coal export and transfer terminal with an annual handling capacity of 30 million tons (three berths of 35,000 tons capacity). The ODA loan covered the entire foreign currency portion of the procurement of equipment, materials and services required for the implementation of the project.

(4) Borrower/Executing Agency

Ministry of Foreign Trade and Economic Corporation, People's Republic of China / Ministry of Communications, People's Republic of China

(5) Outline of Loan Agreement

	Phase I (FY1993)	Phase II (FY1994)
Loan Amount/ Loan Disbursed Amount	¥3,944 million / ¥3,932 million	¥7,178 million / ¥6,785 million
Exchange of Notes/ Loan Agreement	August 1993 / August 1993	January 1995 / January 1995
Terms and Conditions	Interest rate: 2.6%, Repayment period: 30 years (10 years for grace period), General Untied	Interest rate: 2.6%, Repayment period: 30 years (10 years for grace period), General Untied
Final Disbursement Date	September 1998	February 2000

2. Results and Evaluation

(1) Relevance

This port ships coal from its hinterlands, which produce 30% of China's coal. The plan for this project called for the construction of new 4th Stage berths with capacity of 30 million tons at the port, based on the coal production and shipping plan contained in the National Energy Supply and Demand Plan. The plan set a coal production target of 1.4 billion tons in 2000, of which the production target for the port's hinterlands was 500 million tons.

At the time of the appraisal it was decided that the design vessel for the moorings should be 35,000DWT class, based on the size of coal-carrying vessels already entering Qinhuangdao Port, and the standard type of specialist coal freighter on Chinese domestic routes. Therefore the project scope included the construction of three berths for vessels of 35,000DWT. However, it was realized that it would be more efficient to change the design to accommodate larger vessels in future, and in the expectation of larger vessels in future, the possibility of constructing one of the three berths to the 100,000DWT class was being examined. It was changed to two berths in the 35,000DWT class and one in the 100,000DWT class.

Table 1 Movements in Coal Production Volume

Units: tons x 10,000

Category	1990	1992	1995	1997	1998	1999
①Domestic coal production volume	108,000	110,000	129,218	132,525	123,257	104,500
②Production volume in the port hinterlands (total)	28,500	31,000	50,634	52,690	48,525	39,900
②／①（%）	26.4	28.2	39.2	39.8	39.4	38.2
Shanxi	25,300	27,050	33,176	33,038	30,719	24,900
Shaanxi	900	1,200	3,958	4,958	4,446	2,400
Inner Mongolia	2,000	2,400	6,445	7,908	7,723	7,100
Hebei	300	350	7,055	6,786	5,637	5,500

Source: JBIC materials: Materials provided The Headquarters of Construction Port of Qinhuangdao, China Coal Industrial Yearbook, China Statistical Yearbook

(2) Efficiency

Delivery of equipment during the implementation of the project was delayed by between three and maximum of nine months due to the impact of natural disasters on suppliers. Construction was ultimately completed seven months behind schedule. The implementation scheme followed the initial plan, putting The Headquarters of Construction Port of Qinhuangdao which is under the Ministry of Communications, in charge. The Headquarters had experience of projects since the first ODA loan and performed to the best of its ability, completing construction with a minimum of delay. The local currency cost of the project overran, partly due to the seven months delay in completion.

(3) Effectiveness

(i) Movements in coal handling volume and numbers of vessels entering the port

The volume of coal handled is rising every year, but it has not yet reached the annual coal handling target volume of 30 million tons. The seven months delay in completion had some effect, but the main factors included the stagnation in coal production volume growth, which was due to demand for steel leveling off, and a policy of shifting to other energy sources to avoid the environmental problems of coal.

Furthermore, coal must be processed to meet the demands of its users (for example, separation of coal lumps from powder, and blending of coals to maintain a consistent quality for use in power stations), and these processes take more time than they used to, which has had an impact on growth in the volume of freight handled.

Nevertheless, the volume of coal handled through the year 2000 by the 4th Stage berths was 25.03 million tons, exceeding the previous year's volume to reach a new record (Table 2).

Table 2 Movements in Volumes of Coal Handled at Qinhuangdao Port

Units: Tons x 10,000

Category	1980	1990	1992	1994	1997 (Completion)	1998	1999	2000
Transfer [Actual]	962	4,001	4,953	4,707	4,570 (349)	4,665 (1,039)	5,063 (1,449)	5,263 (1,424)
Export [Actual]	299	1,187	1,334	1,581	1,621 (91)	1,539 (364)	1,910 (565)	3,115 (1,079)
Total [Actual]	1,261	5,188	6,287	6,288	6,191 (440)	6,204 (1,403)	6,973 (2,014)	8,378 (2,503)
[Plan]				7,750	9,600 (2,235)	10,200 (2,835)	10,800 (3,000)	11,500 (3,000)

Source: JBIC documents, and materials provided by The Headquarters of Construction Port of Qinhuangdao

Note: Figures in parentheses in the transfer, export and total columns are for the Phase 4 berths.

Examination of the relationship between the volumes of coal production in the hinterlands and coal handling at Qinhuangdao Port shows that the port's share of production volume has been growing gradually since 1997, when the 4th Stage berths were completed. The share was 11.7% in 1997, increasing to 12.7% in 1998 and 17.4% in 1999. Further, the 4th Stage berths' contribution to the total performance of all berths at Qinhuangdao Port shows that they had a share of 7.1% in 1997 (the berths were completed in July), 22.8% in 1998, 28.9% in 1999, and 29.9% in 2000. The target for the 4th Stage berths in 2000 is that they should take a 26.1% share of the total freight handling volume for the whole port. The growth rates in freight volume for 4th Stage were 43.5% in 1998/99 (against 12.4% for the whole port) and 24.5% in 1999/2000 (against 20.1%). Thus the Phase 4 berths can be regarded as playing a valuable role.

For reference, Table 3 and 4 transfer and export volumes, classified by major destinations. Exports are mainly to South Korea and Taiwan, while transfers are mainly to Zhejiang and Guangdong Provinces.

Table 3 Recorded Exports to Major Destinations (2000)

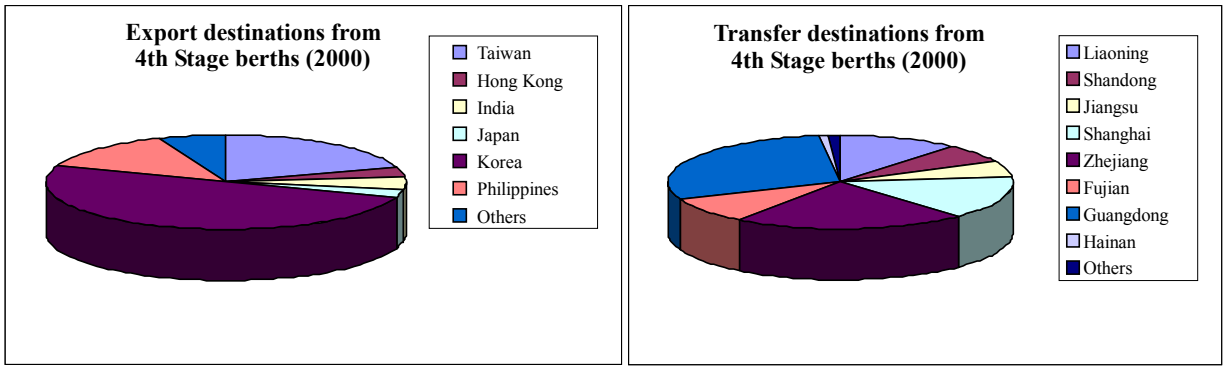
Units: Tons x 10,000

Category	Taiwan	Hong Kong	India	Japan	Korea	Philippines	Others	Total
All coal berths	738	164	80	223	1,645	167	98	3,115
Share (%)	23.7	5.3	2.6	7.2	52.8	5.3	3.1	100.0
4th Stage berths	213	38	47	29	542	145	65	1,079
Share (%)	19.7	3.5	4.4	2.7	50.2	13.4	6.1	100.0

Table 4 Recorded Transfer to Major Destinations (2000)

Units: Tons x 10,000

Category	Liaoning	Shandong	Jiangsu	Shanghai	Zhejiang	Fujian	Guangdong	Hainan	Others	Total
All coal berths	367	257	408	958	1,250	343	1,182	71	427	5,263
Share (%)	7.0	4.9	7.8	18.2	23.8	6.5	22.5	1.3	8.0	100.0
4th Stage berths	157	98	76	211	314	123	419	12	14	1,424
Share (%)	11.0	6.9	5.3	14.8	22.1	8.6	29.4	0.8	1.1	100.0



Source: Materials presented by The Headquarters of Construction Port of Qinhuangdao

Table 5 shows the number of vessels docking at 4th Stage berths, the vessel tonnage and the berth occupancy rates. The figures show three years of growth after completion.

Table 5 Numbers of Vessels Docking etc.

Category	1998	1999	2000
No. of vessels	566	741	770
Vessel tonnage (tons x 10,000)	1,524.5	2,210.5	2,699.4
Berth occupancy rate (%)	47.8% (174.5 days)	64.5% (235.4 days)	74.0%(270.1 days)

Source: Materials presented by The Headquarters of Construction Port of Qinhuangdao
Note: Berth occupancy rate = No. of days occupied/ 365 days

(ii) Job creation

The construction of the 4th Stage berths for China's largest coal shipping and export terminal created approximately 700 new jobs.

Table 6 Direct Employment

1997 (completed in July)	1998	1999
763 persons	754 persons	710 persons

Source: Materials presented by The Headquarters of Construction Port of Qinhuangdao

(ii) Financial Internal Rate of Return (FIRR)

The FIRR for the project was calculated on the basis of recorded revenue (mooring charges etc.) from the 4th Stage berths in 2000 as the benefit of the project, with construction and maintenance costs as the project costs, and an assumed project life of 30 years. The result was 1.9%, compared to 13.3% anticipated at the time of the appraisal. The gap was due to the delay in implementation schedule and the level of coal handling volumes between 1998 and 2000, which ranged between 50% and 80% of the planned volume, as shown in Table 2.

(4) Impact

(i) Environmental impact

To gauge the environmental impact of the project, environmental pollution figures were obtained for

SO2 in April 2000, NOx in July 2000 and total suspended particulates (TSP) in June 2000. Seawater quality measurement data for May 2000 was also obtained. Data for TSP was measured twice a week, making eight days of data, of which Chinese environmental standards were exceeded on three days. Most of the other data were within Chinese environmental standards, indicating that the project does not appear to be causing environmental problems.

(ii) Economic impact

In addition to achieving smoother handling of coal, the project achieved reliable coal supplies to southern China, as shown in "(3) Effectiveness", and the increase in export volume has contributed to economic development.

(5) Sustainability

No.7 Company of Qinhuangdao Port carries out maintenance of the facilities. The Corporation has a total of 645 employees (as of August 2000). The Port Authority has many years of experience in port operation, and it will continue to support the work of the No.7 Company of Qinhuangdao Port in the future operation of the port as a whole. There does not appear to be any problem with the sustainability of the executing agency. Table 7 shows the business revenue and maintenance costs of the 4th Stage berths. Financing income exceeds expenditures.

Table 7 Business Revenue and Maintenance Cost

Unit: million yuan

Category	1998	1999	2000
Business revenue	151	232	286
Maintenance cost (Note)	116	137	197

Source: Materials presented by The Headquarters of Construction Port of Qinhuangdao
Note: Depreciation cost is not included.

The profitability of this project is greatly influenced by the quantity of coal handled, which means that the sustainability of the project depends on future demand for coal.

Comparison of Original and Actual Scope

Item	Plan	Actual
①Project Scope	(1) Mooring facilities: 35,000DWT class berths×3 Wharf for mooring working vessels (105m long×6m water depth) (2) Channels and anchorages Anchorages (12.0m water depth) Channels (140m width×12.0m water depth) (3) Car dumper station: Car dumping equipment: 2 units (4) Coal yard Area: 380,000m^2 (Reclaimed area: 420,000m^2) (5) Cargo-hardling machine Ship loader / belt conveyer etc. (6) Port service facilities: Navigation indicators / tugboats / service vehicles / marine safety supervisory system etc. (7) Utilities: Provision of electricity / lighting / water supply and drainage / ventilation and dustproof facilities / heating facilities etc. (8) Buildings (9) Environmental conservation equipment (10) Product inspection (11) Technical assistance (dispatch of inspection mission) (12) Others	(1) Mooring facilities: 35,000DWT class berths×2 100,000DWT class berths×1 (2) Channels and anchorages 35,000DWT class anchorage (12.0m water depth) 35,000DWT class channel (140m width×12m water depth) 100,000DWT class anchorage (17.0m water depth) 100,000DWT class channel (200m width×16.5m water depth) (3)-(12) same as left However, (11) Technical assistance (dispatch of inspection mission) was excluded when appraising Qinhuangdao Port 4th Stage Coal Terminal Construction Project (II)
②Implementation Schedule	Mar. 1991 ~ Dec. 1996 (70 months)	Mar. 1991 ~ Jul. 1997 (77 months)
③Project Cost Foreign currency Local currency Total ODA loan portion Exchange rate	 ¥11,520 million 532 million yuan ¥22,637 million ¥11,520 million 1 yuan ＝ ¥20.9	 ¥10,717 million 825 million yuan ¥22,886 million ¥10,717 million 1 yuan ＝ ¥14.76